

CLAIMS

1. A system for mounting a rider to a snowboard, the system comprising:
a snowboard boot having a sole including a heel area, an arch area and a toe area;
a snowboard binding;
a first engagement member; and
a second engagement member;
wherein one of the first and second engagement members is mounted to the sole of the snowboard boot forward of the arch area and the other of the first and second engagement members is mounted to the binding;
wherein the first engagement is adapted to mate with the second engagement member to releasably engage the snowboard boot to the binding; and
wherein the first engagement member is an active engagement member that is movable between a first state wherein the first engagement member does not engage the second engagement member and a second state wherein the first engagement member engages the second engagement member to inhibit lifting of the toe area of the boot from the binding during riding, and wherein the active engagement member is automatically movable, in response to the rider stepping out of the binding, from the second state to the first state.

- H 2. The system of claim 1, wherein the active ^{first} engagement member is further automatically movable, in response to the rider stepping into the binding, from the first state to the second state, wherein the second engagement member is a cleat having a base mounted to one of the snowboard boot and the binding, wherein the cleat further includes medial and lateral sides, and wherein at least one of the medial and lateral sides tapers inwardly from a wider base-end portion of the cleat adjacent the base to a narrower free-end portion of the cleat away from the base.

3. The system of claim 2, wherein the first engagement member includes a pair of spaced apart engagement members, and wherein the cleat further includes medial and lateral shelves disposed adjacent the wider base-end portion of the cleat, each of the shelves being adapted to receive one of the pair of spaced apart engagement members.

11. The system of claim ²²10, wherein each of the medial and lateral sides of the cleat is adapted to spread the pair of spaced apart engagement members apart as the snowboard boot steps into engagement with the binding.
- 5 ²³12. The system of claim ²²11, wherein each of the medial and lateral sides of the cleat is adapted to spread apart the pair of spaced apart engagement members as one of the cleat and the pair of spaced apart engagement members is brought straight down on top of the other.
- 10 ²⁴13. The system of claim ²²11, wherein at least one of the medial and lateral shelves includes an outer base-facing lip that is adapted to retain the corresponding one of the pair of spaced apart engagement members on the shelf.
- 15 ¹⁹14. The system of claim ¹⁸9, wherein the medial and lateral sides of the wedge-shaped cleat each further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat.
- ²⁷15. The system of claim 1, wherein the first engagement member is mounted to the binding and the second engagement member is mounted to the snowboard boot.
- 20 ⁷16. The system of claim 6, wherein the at least one of the medial and lateral sides of the cleat is adapted to spread apart the pair of spaced apart engagement members as the snowboard boot is stepped into engagement with the binding.
- ¹⁰17. The system of claim 3, wherein at least one of the pair of spaced apart engagement members is biased for movement toward the other.
- 25 ¹⁶18. The system of claim ¹⁰17, wherein each of the pair of spaced apart engagement members is loop-shaped.
- 30 ¹¹19. The system of claim ¹⁰17, wherein the first engagement member further includes at least one stop adapted to inhibit migration of the second engagement member when engaged with the pair of spaced apart engagement members.

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~~20~~. The system of claim ¹¹~~19~~, wherein each of the pair of spaced apart engagement members is loop-shaped, and wherein the at least one stop has a height that is less than a height of at least one of the pair of spaced apart loop-shaped engagement members, so that the one of the pair of loop-shaped engagement members can flex over a top of the stop.

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~~21~~. The system of claim ¹²~~20~~, wherein each of the loop-shaped engagement members includes a loop having a length extending in a heel-to-toe direction, and wherein the at least one stop has a dimension extending in the heel-to-toe direction that is less than the length of the loop, so that the loop can flex about the stop.

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~~22~~. The system of claim ¹³~~21~~, wherein the pair of spaced apart engagement members is spaced apart by a distance, wherein the wider base-end portion of the cleat is wider than the distance, and wherein the narrower free-end portion of the cleat is narrower than the distance.

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~~23~~. The system of claim 21, wherein the medial and lateral sides of the wedge-shaped cleat each further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat, and wherein the wider toe-end portion of the cleat is wider than the distance and the narrower heel-end portion of the cleat is narrower than the distance.

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~~24~~. The system of claim 2, wherein the medial and lateral sides of the wedge-shaped cleat each further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat.

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~~25~~. The system of claim ¹⁶~~18~~, wherein at least one of the pair of spaced apart engagement members is biased for movement toward the other.

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~~26~~. The system of claim ²⁰~~10~~, wherein the medial and lateral sides of the wedge-shaped cleat each further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat.

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The system of claim 3, wherein the pair of spaced apart engagement members is spaced apart by a distance, wherein the wider base-end portion of the cleat is wider than the distance, and wherein the narrower free-end portion of the cleat is narrower than the distance.

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28. The system of claim 27, wherein the medial and lateral sides of the wedge-shaped cleat each further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat, and wherein the wider toe-end portion of the cleat is wider than the distance and the narrower heel-end portion of the cleat is narrower than the distance.

10 29. ~~The system of claim 3, wherein the medial and lateral sides of the wedge-shaped cleat each further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat, and wherein the wider toe-end portion of the cleat is wider than the distance and the narrower heel-end portion of the cleat is narrower than the distance.~~

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30. The system of claim 1, wherein the second engagement member includes means for automatically moving the active ^{first} engagement member from its first state to its second state in response to the rider stepping into the binding.

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20 The system of claim 30, wherein the first engagement member includes a pair of spaced apart engagement members, and wherein the second engagement member includes means for automatically spreading the pair of spaced apart engagement members apart to release the second engagement member in response to the snowboard boot being stepped out of engagement with the binding.

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The system of claim 31, wherein the first and second engagement members each is adapted to underlie the toe area of the snowboard boot, and wherein the second engagement member includes means for resisting release from the pair of spaced apart engagement members in response to a lifting force generated at the toe area of the snowboard boot.

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30 33. A snowboard boot adapted for use with a binding to mount the snowboard boot to a snowboard, the binding including a pair of spaced apart engagement members, the snowboard boot comprising:

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a sole, and

a cleat having a base that is supported by the sole, the cleat being adapted to be releasably engaged by the pair of spaced apart engagement members, the cleat including medial and lateral sides, wherein at least one of the medial and lateral sides tapers inwardly from a wider base-end portion of the cleat adjacent the base to a narrower free-end portion of the cleat away from the base, the at least one of the medial and lateral sides being adapted to separate the pair of spaced apart engagement members when the snowboard boot steps into the binding.

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34. The snowboard boot of claim ³⁴33, wherein the cleat further includes medial and lateral shelves disposed adjacent the wider base-end portion of the cleat, each of the shelves being adapted to receive one of the pair of spaced apart engagement members.

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35. The snowboard boot of claim ³⁴33, wherein the sole includes a heel area, an arch area and a toe area, and wherein the cleat is mounted to the sole of the snowboard boot forward of the arch area.

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36. The snowboard boot of claim ³⁴33, wherein the at least one of the medial and lateral sides of the cleat is adapted to spread apart the pair of spaced apart engagement members as the cleat is brought straight down on top of the pair of spaced apart engagement members.

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37. The snowboard boot of claim ³⁴34, wherein at least one of the medial and lateral shelves includes an outer base-facing lip that is adapted to retain the corresponding one of the pair of spaced apart engagement members on the shelf.

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38. The snowboard boot of claim ³⁴33, wherein the cleat includes means for automatically spreading the pair of spaced apart engagement members apart to release the cleat in response to the snowboard boot stepping out of engagement with the binding.

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39. The snowboard boot of claim ⁴²38, wherein the cleat underlies a toe area of the snowboard boot, and wherein the cleat further includes means for resisting release from the pair of spaced apart engagement members in response to a lifting force generated at the toe area of the snowboard boot.

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40. The snowboard boot of claim 33, wherein the cleat is wedge-shaped, and wherein the wedge-shaped cleat has medial and lateral sides that each tapers inwardly from the wider base-end portion of the cleat to the narrower free-end portion of the cleat.

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41. The snowboard boot of claim 40, wherein each of the medial and lateral sides of the cleat is adapted to spread the pair of spaced apart engagement members apart as the snowboard boot steps into the binding.

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42. The snowboard boot of claim 41, wherein each of the medial and lateral sides of the cleat is adapted to spread apart the pair of spaced apart engagement members as the cleat is brought straight down on top of the pair of spaced apart engagement members.

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43. The snowboard boot of claim 40, wherein the cleat further includes medial and lateral shelves disposed adjacent the wider base-end portion of the cleat, each of the shelves being adapted to receive one of the pair of spaced apart engagement members, and wherein at least one of the medial and lateral shelves includes an outer base-facing lip that is adapted to retain the corresponding one of the pair of spaced apart engagement members on the shelf.

44. The snowboard boot of claim 33, wherein the at least one of the medial and lateral sides of the cleat further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat.

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45. The snowboard boot of claim 33, wherein the pair of spaced apart engagement members is spaced apart by a distance, and wherein the wider base-end portion of the cleat is wider than the distance, and wherein the narrower free-end portion of the cleat is narrower than the distance.

46. The snowboard boot of claim 45, wherein the pair of spaced apart engagement members is spaced apart by a distance, wherein the cleat further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat, and wherein the wider toe-end portion of the cleat is wider than the distance and the narrower heel-end portion of the cleat is narrower than the distance.

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The snowboard boot of claim 35, wherein the cleat underlies a toe area of the snowboard boot.

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48. The snowboard boot of claim 33, wherein the cleat further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat, and wherein the wider toe-end portion of the cleat is wider than the distance and the narrower heel-end portion of the cleat is narrower than the distance.

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The snowboard boot of claim 34, wherein the cleat further includes medial and lateral shelves disposed adjacent the wider base-end portion of the cleat, each of the shelves being adapted to receive one of the pair of spaced apart engagement members.

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The snowboard boot of claim 40, wherein the medial and lateral sides of the cleat each further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat.

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~~A snowboard boot adapted for use with a binding to mount the snowboard boot to a snowboard, the binding including a first engagement member, the snowboard boot comprising:~~
a sole; and

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a second engagement member supported by the sole, the second engagement member including engagement means for releasably engaging the first engagement member, the engagement means including means for automatically disengaging from the first engagement member in response to the snowboard boot ~~stepping out of engagement with the binding.~~

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The snowboard boot of claim 51, wherein the second engagement member further includes means for automatically engaging the first engagement member in response to the snowboard boot stepping into the binding, and wherein the second engagement member underlies a toe area of the snowboard boot.

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The snowboard boot of claim 52, wherein the engagement means further includes means for resisting release from the first engagement member in response to a lifting force generated at the toe area of the snowboard boot.

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54. A snowboard binding to mount a snowboard boot to a snowboard, the snowboard boot including a first engagement member, the snowboard binding comprising:

a base; and

a second engagement member, mounted to the base, that is adapted to mate with the first
5 engagement member to releasably engage the snowboard boot to the binding, the second engagement member being an active engagement member that is movable between a first state wherein the second engagement member does not engage the first engagement member and a second state wherein the second engagement member engages the first engagement member to inhibit lifting of the boot from the binding during riding, and wherein the active engagement
10 member is automatically movable, in response to the rider stepping out of the binding, from the second state to the first state.

55. The snowboard binding of claim 54, wherein the active engagement member is further automatically movable, in response to the rider stepping into the binding, from the first state to
15 the second state, wherein the first engagement member includes a cleat having a base mounted to a sole of the snowboard boot and medial and lateral sides, and wherein the second engagement member includes a pair of spaced apart engagement members each adapted to engage one of the medial and lateral sides of the cleat.

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56. The snowboard binding of claim 55, wherein the pair of spaced apart engagement members is adapted to be spread apart as the snowboard boot steps into engagement with the binding.

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57. The snowboard binding of claim 55, wherein each of the pair of spaced apart engagement
25 members extends in a substantially heel-to-toe direction along a length of the binding.

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58. The snowboard binding of claim 55, wherein the second engagement member is adapted to underlie a toe area of the snowboard boot, and wherein the second engagement member includes means for resisting release of the ^{first engagement member} cleat from the pair of spaced apart engagement
30 members in response to a lifting force generated at the toe area of the snowboard boot.

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59. The snowboard binding of claim ⁵⁷55, wherein at least one of the pair of spaced apart engagement members is biased for movement toward the other.

60. The snowboard binding of claim ⁵⁷55, wherein each of the pair of spaced apart engagement members is loop-shaped.

61. The snowboard binding of claim 55, wherein the second engagement member further includes at least one stop adapted to inhibit migration of the cleat when engaged with the pair of spaced apart engagement members.

62. The snowboard binding of claim ⁶³61, wherein each of the pair of spaced apart engagement members is loop-shaped, and wherein the at least one stop has a height that is less than a height of at least one of the pair of spaced apart loop-shaped engagement members, so that the one of the pair of loop-shaped engagement members can flex over a top of the stop.

63. The snowboard binding of claim ⁶⁴62, wherein each of the loop-shaped engagement members includes a loop having a length extending in a heel-to-toe direction, and wherein the at least one stop has a dimension extending in the heel-to-toe direction that is less than the length of the loop, so that the loop can flex about the stop.

64. The snowboard binding of claim 55, wherein the cleat has a wider base-end portion and a narrower free-end portion, and wherein the pair of spaced apart engagement members is spaced apart by a distance that is greater than the narrower free-end portion of the cleat and smaller than the wider base-end portion of the cleat.

65. The snowboard binding of claim 64, wherein each of the medial and lateral sides of the cleat further tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat, and wherein the pair of spaced apart engagement members is spaced apart by a distance that is greater than the narrower heel-end portion of the cleat and smaller than the wider toe-end portion of the cleat.

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66. The snowboard binding of claim 55, wherein each of the pair of spaced apart engagement members is biased for movement toward the other.

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67. The snowboard binding of claim 56, wherein each of the pair of spaced apart engagement members is loop-shaped.

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68. The snowboard binding of claim 54, wherein the first engagement member is disposed to underlie a toe area of the snowboard boot.

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69. The snowboard binding of claim 64, wherein each of the pair of spaced apart engagement members is loop-shaped.

70. The snowboard binding of claim 69, wherein at least one of the pair of spaced apart engagement members is biased for movement toward the other.

71. The snowboard binding of claim 65, wherein each of the pair of spaced apart engagement members is loop-shaped.

72. The snowboard binding of claim 71, wherein at least one of the pair of spaced apart engagement members is biased for movement toward the other.

73. The snowboard binding of claim 55, wherein each of the medial and lateral sides of the cleat tapers along a length of the cleat from a wider toe-end portion of the cleat to a narrower heel-end portion of the cleat, and wherein the pair of spaced apart engagement members is spaced apart by a distance that is greater than the narrower heel-end portion of the cleat and smaller than the wider toe-end portion of the cleat.

74. A method of interfacing a first engagement member on a snowboard boot with a second engagement member on a snowboard binding that is engageable with the first engagement member to mount the snowboard boot to a snowboard, wherein at least one of the first and second engagement members is an active engagement member that is moveable between an open position and a closed position, the method comprising a step of:

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52 (A) stepping the snowboard boot out of the snowboard binding so that the active engagement member automatically moves from the closed position to the open position without operating a lever on the snowboard boot or the snowboard binding, so that the first engagement member is disengaged from the second engagement member.

5 81/75. The method of claim 80/74, further comprising a step of:

10 (B) stepping the snowboard boot into the snowboard binding so that the active engagement member automatically moves between the open and closed positions without operating a lever on the snowboard boot or the snowboard binding, so that the first engagement member engages with the second engagement member.

add B10 76. The method of claim 74, wherein the step (B) includes a step of stepping the snowboard boot into the snowboard binding so that the first engagement member is brought substantially straight down on top of the second engagement member.

15 83/77. The method of claim 80/74, wherein the snowboard boot includes a sole having a heel area, an arch area and a toe area, wherein the first engagement member is mounted on the toe area of the sole, and wherein the step (A) includes a step of stepping the snowboard boot out of the snowboard binding by first lifting the heel area of the sole away from the snowboard binding and
20 pivoting the snowboard boot forward about the toe area of the sole.

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